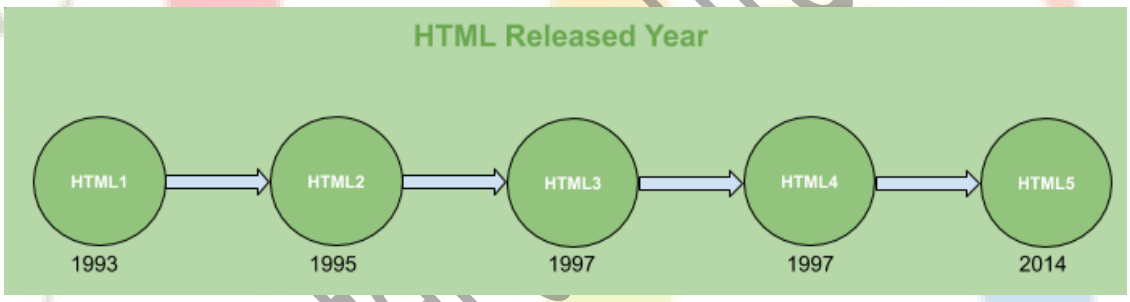
Unit 4: HTML and Structure of Webpage

What is HTML?

- HTML stands for HyperText Markup Language.
- It is used to design web pages using a markup language.
- We can create static websites by HTML only.
- It is the combination of Hypertext and Markup language. Hypertext defines the link between the web pages.
- A markup language is used to define the text document within tag which defines the structure of web pages. This language is used to annotate (make notes for the computer) text so that a machine can understand it and manipulate text accordingly. Most markup languages (e.g. HTML) are human-readable.
- The language uses tags to define what has to be done on the text.
- HTML was created by Tim Berners-Lee in 1991. The first-ever version of HTML was HTML 1.0, but the first standard version was HTML 2.0, published in 1999.



Elements and Tags:

- HTML pages are created by tagging textual information with HTML markup. HTML markup consists of tags, which appear inside angled brackets < and >
- HTML elements (Tags) are the building blocks of HTML pages.
- HTML tags label pieces of content such as "heading", "paragraph", "table", and so on
- Browsers do not display the HTML tags, but use them to render the content of the page
- HTML uses predefined tags and elements which tell the browser how to properly display the content. Remember to include closing tags. If omitted, the browser applies the effect of the opening tag until the end of the page.

Features of HTML

- Html is a static page.
- Html is not a case sensitive.

- Html is a error free language.
- It provides facilities to add audio, video, image on web pages.
- Each and every elements of html should be enclosed within the angular brackets (<>).
- Html programs are executed by the interpreter of the browser software.
- Html program save with .htm or .html extension.
- It is a very easy and simple language. It can be easily understood and modified.
- It is very easy to make effective presentation with HTML because it has a lot of formatting tags.
- It is a markup language so it provides a flexible way to design web pages along with the text.
- It facilitates programmers to add link on the web pages (by html anchor tag) , so it enhances the interest of browsing of the user.
- It is platform-independent because it can be displayed on any platform like Windows, Linux and Macintosh etc.
- It facilitates the programmer to add Graphics, Videos, and Sound to the web pages which makes it more attractive and interactive.

HTML Rules

- **HTML documents are structured documents.**
    - It defines what elements a document can contain, their possible relationship to one another within a documents and possible attributes and values. If the elements in actual html document agree within this definition, the document, is said to be valid.
- **Elements names are not case sensitive.**
    - An element like <html> or <HTML> or <Html> is equivalent.
- **Attributes names are not case sensitive.**
- **Attributes value may be case sensitive.**
    - The value of an attribute may be case sensitive, if it refers to a file, the filename in <IMG src="filename.gif"> may not be same as the file name in <IMG src="FILENAME.gif">,it depends on the operating system.
- **Elements names cannot contain spaces.**
- **Attribute values may contain spaces if the values is enclosed by quotes.**
- **Browser collapse and ignores White space characters in html content**
- **Html document may contain comments.**
    - Comments are denoted by a start value of **<!-- and an end value of -->comments** can be many line long, there is no space between the dashes or exclamation in the comment.
- **An element that encloses the start tag of another element must also enclose its end tag, if exists.**
    - For Example, use <B> <I> correct </I></B> and

- <B> <I> Not correct </B></I>

- Follow the rule **"Tag that opens first, closes last".**
- Browser ignores unknown elements.
- Browser ignores unknown attributes.

Basic structure of an HTML document

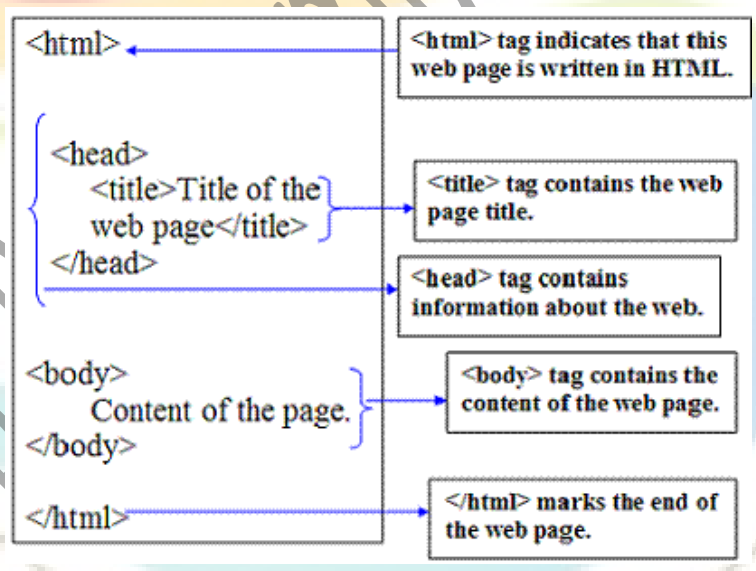
- An HTML document has two main parts:
  - **<head>:** The head element contains title and meta data of a web document.
  - **<Body>:** The body element contains the information that you want to display on a web page.

Head of an HTML Document

- Information placed within this section is only for the inner working of the document. The information written in this section will be displayed onto the web page.
- Within <head> </head>,<title> tag will be there. The text written within <title> </title> tags, will be displayed on the title bar of the web page.

Syntax:

<head> <title>..... </title></head>



Body of an HTML Document

- The body used for text and tags that are shown directly on the page. The information written within this tag, will be displayed on the browser window.
- The tags used to indicate the start and end of the main body of textual information are:

Syntax:

```
<body>
    Should appear after the </head> definition.
</body>
```

- we can also specify the text color, background color or background image for the entire page within the <body> tag.
- finally, all web pages have an <html> tag at the beginning and end, telling the browser where the document starts and where it stops.
- The general syntax is as follow:

```
<html>
    <head>
        <title>Any text </title>
    </head>
    <body>
        Main content will be written here.
    </body>
</html>
```

Example:

```
<html>
 <head>
    <title>My Web Page </title>
 </head>
 <body>
    This is my first web page. The actual content are written in this
section.    </body>
</html>
```

HTML Tags

- Tags contain elements which provide instructions for how information will be processed or displayed. There are both starter tags <TAG> and end tags </TAG>
- Tags are opened and end closed in (< >)angular brackets.
- There are two types of tags
    - Container tag/paired tag
    - Non-container/Empty tag/Singular tag

1. Container tag/paired tag

- Html tags used to be enclosed within angular brackets. Anything Witten without using angular brackets is interpreted as text.
- "Tags" that are needed to be closed are called container tags.
- It is also known as paired tag.
- It means that any tag of the form <tag>....</tag>is container tag.

Example:

```
<body>.....</body>
<p>.............</p>
```

```
<head>.....</head>
<title>.....<title>
<html>.....</html>
```

2. Non-container/Empty tag/Singular tag

- The tags that do not need closing tag are called empty tag. They do not contained any things. They are also called as container tag or singular tag.

Example:

```
<hr>
<br>
<img>
```

HTML Elements

- An HTML element usually consists of a start tag and end tag, with the content inserted in between:
  <tagname>Content goes here...</tagname>
- The HTML element is everything from the start tag to the end tag:
  My first paragraph.
- The <html> element defines the whole document.
- It has a start tag <html> and an end tag </html>.
- The element content is another HTML element (the <body> element).
- Some html elements have empty tag. Empty elements are closed in the start tag
- Most html elements can have attributes.

Nested HTML Elements

- HTML elements can be nested (this means that elements can contain other elements).
- All HTML documents consist of nested HTML elements.
- The following example contains four HTML elements (<html>, <body>, <h1> and):

Example:

```
<html>
<body>                                                    >
    <h1>MyFirstHeading</h1>
    <p>Myfirstparagraph.</p>
</body>
</html>
```

HTML Attributes

- HTML attributes are special words which provide additional information about the elements or attributes are the modifier of the HTML element.
- Each element or tag can have attributes, which defines the behaviour of that element.
- Attributes should always be applied with start tag.

- The Attribute should always be applied with its name and value pair. i.e. name="value" and separated by an equals (=) sign.
    - Attribute values always be enclosed in double/single quotes.
    - Double quotes are the most common use, but single quotes are also allowed.
- The Attributes name and values are case sensitive, and it should be written in Lowercase only.
- You can add multiple attributes in one HTML element, but need to give space between two attributes.

Syntax:

```
<element attribute_name="value">content</element>
```

- Some of the more common attributes are:

Tag	Value	Description
Alt	Text	Specifies an alternate text for an image
Href	URL	Specifies the URL of the page the link goes to
Src	URL	Specifies the URL of an image
Width	Pixels	Specifies the width of tables, images, or table cells.
Height	Pixels	Specifies the width of tables, images, or table cells.
Style	style _Attributes	CSS code specifies inline the HTML element is presented.
Title	Title_Description	Display on the "tooltip" for your elements.
Id	ID_Name	Declared unique id for the element.

1. HTML Paragraph tag .....

- The tag defines a paragraph.
- Browsers automatically add some space (margin) before and after each element
- The paragraph tags are used to define a block of text as a paragraph.
- The HTML tag also supports following additional attributes:

Attribute	Value	Description
Id	Id	Specifies a unique id for an element
class	Class name	Specifies one or more class names for an element (refers to a class in a style sheet)
Title	Any text	Specifies extra information about an element
Style	Style attribute	Specifies an inline CSS style for an element
Align	left right center justify	Specifies text alignment within a paragraph.

Example:

```
<html>
<body>
<p>This paragraph contains a lot of lines in the source code, but the browser ignores it. </p>
<p align="right" >This is some text in a paragraph.</p>
</body>
</html>
```

2. HTML Heading tag<h1> to <h6>

- There are 6 levels of html headings (h1 through h6).
- The HTML <h1> to <h6> tag are used to define headings in an HTML document .They have their own styles. Headings are always display as bold text. You can use different sizes for your headings. HTML also has six levels of headings, which use the elements <h1>, <h2>, <h3>, <h4>, <h5>, and <h6>. While displaying any heading, browser adds one line before and one line after that heading.
- <h1> defines largest heading and <h6> defines smallest heading.

Attribute	Value	Description
Id	Id	Specifies a unique id for an element
class	Class name	Specifies one or more class names for an element (refers to a class in a style sheet)
Title	Any text	Specifies extra information about an element
Style	Style attribute	Specifies an inline CSS style for an element
Align	Left, right, center justify	Specifies text alignment within a heading.

Example:

```
<html>
<body>
<h1 align="center" >This is heading 1</h1>
<h2>This is heading 2</h2>
<h3>This is heading 3</h3>
<h4>This is heading 4</h4>
<h5>This is heading 5</h5>
<h6>This is heading 6</h6>
</body>
</html>
```

This is heading 1

This is heading 2

This is heading 3

This is heading 4

This is heading 5

This is heading 6

3. HTML break line
 Tag

- The
 tag inserts a single line break.
- The
 tag is an empty tag which means that it has no end tag.
- Use the
 tag to enter line breaks, not to separate paragraphs.

Attribute	Value	Description
Id	Id	Specifies a unique id for an element
class	Class name	Specifies one or more class names for an element (refers to a class in a style sheet)
Title	Any text	Specifies extra information about an element
Style	Style definition	Specifies an inline CSS style for an element

Example:

```
<html>
<body>
        <p>To break lines<br>in a text,<br>use the br element.</p>
</body>
</html>
```

4. HTML anchor <a> Tag

- The <a> tag defines a hyperlink, which is used to link from one page to another.
- The most important attribute of the <a> element is the href attribute, which indicates the link's destination.
- By default, links will appear as follows in all browsers:
- An unvisited link is underlined and blue
- A visited link is underlined and purple
- An active link is underlined and red
- If the <a> tag has no href attribute, it is only a placeholder for a hyperlink.
- A linked page is normally displayed in the current browser window, unless you specify another target.

Attribute	Value	Description
Id	Id	Specifies a unique id for an element
Class	Class name	Specifies one or more class names for an element (refers to a class in a style sheet)
Title	Any text	Specifies extra information about an element
Style	Style definition	Specifies an inline CSS style for an element
download	filename	Specifies that the target will be downloaded when a user clicks on the hyperlink
Href	URL	Specifies the URL of the page the link goes to
Target	_blank ,_parent _self, _top	Specifies where to open the linked document

Example:

```
<html>
<body>
<p>Click on <a href="https://www.google.com/" target="_blank"> Google </a>to go on home page of G
oogle.</p>  </body>
</html>
```

5. HTML <img> Tag (Displaying images in html)

- HTML <img> tag is insert image into a web document.
- HTML image path define/declare inside <img> tag.
- The <img> tag is empty tag, that mean's no closing tag.
- <img> tag have some attributes are use for display image on web page.
- The src attribute, src stands for "source", that is path of image URL.
- Alt Attribute used to define an "alternate text" for an image. This specifies text to be identified in the image name.
- Width and Height specifies the size of image to display on webpage

Attribute	Value	Description
Id	Id	Specifies a unique id for an element
class	Class name	Specifies one or more class names for an element (refers to a class in a style sheet)
Title	Any text	Specifies extra information about an element
Style	Style attribute	Specifies an inline CSS style for an element
align	Top, bottom, middle, left,right	Specifies the alignment of an image according to surrounding elements
alt	text	Specifies an alternate text for an image
border	pixels	Specifies the width of the border around an image
height	pixels	Specifies the height of an image
width	pixels	Specifies the width of an image
hspace	pixels	Specifies the whitespace on left and right side of an image
vspace	pixels	Specifies the whitespace on top and bottom of an image
src	URL	Specifies the URL of an image
usemap	#mapname	Specifies an image as a client-side image-map

Example:

```
<html>
        <body>
                <img src="smiley.gif" alt="Smiley face" width="42" height="42">
        </body>
</html>
```

Images and Anchors(creating image as a link)

- Anchor elements can enclose text or images. When an anchor encloses an image, the image becomes hot. A hot image can active the link. This is known as hot spot. Normally browser shows an image to be part of an anchor by putting a colored around the image.

Example:

```
<html>
<body>
        <a href="home.html>
                <img src="smiley.gif" alt="Smiley face" width="42" height="42">
        </a>
</body>
</html>
```

6. Text level formatting /Text level elements

- HTML provides us with the ability for formatting text just like we do it in MS Word or any text editing software.

tag

- HTML bold tag is represented by tag.
- HTML tag is used to display the written text in bold format. It is strictly a presentational element.
- If you want to show your text in bold letters and not have real semantic meaning, then put it within ..... tag.
- The HTML <font> element is found within the <body> tag.

Attribute	Value	Description
Id	Id	Specifies a unique id for an element
class	Class name	Specifies one or more class names for an element (refers to a class in a style sheet)
Title	Any text	Specifies extra information about an element
Style	Style definition	Specifies an inline CSS style for an element

Example:

```
<html>
<body>
        <p>This is normal text - <b>and this is bold text</b>.</p>
</body>
</html>
```

Output:

This is normal text - **and this is bold text**.

<i> tag

- The <i> tag defines a part of text in an alternate voice or mood. The content inside is typically displayed in italics.
- The <i> tag is often used to indicate a technical term, a phrase from another language, a thought, a ship name, etc.

Example:

```
<html>
<body>
        <p>This is normal text - <i>and this is Italics text</i>.</p>
</body>
</html>
```

Output:

This is normal text - *and this is Italics text*.

tag

- The tag is used to define text with strong importance. The content inside is typically displayed in bold.

```
<html>
<body>
<p>This text is normal.</p>
<p><strong>This text is important! </strong></p>
</body>
</html>
```

Output:

This text is normal.

This text is important!

tag

- The tag is used to define emphasized text. The content inside is typically displayed in italic.
- A screen reader will pronounce the words in with an emphasis, using verbal stress.

```
<html>
<body>
<h1>The em element</h1>
<p>You <em>have</em> to hurry up!</p>
<p>We <em>cannot</em> live like this.</p>
</body>
</html>
```

Output:

<mark> tag

- The <mark> tag in HTML is used to define the marked text. It is used to highlight the part of the text in a paragraph. The <mark> tag is new in HTML 5.

```
<!DOCTYPE html>
<html>
<body>
        <h1>HTML mark Tag</h1>
        <p>
                <mark> C. B. Patel College </mark> It is a
                <mark>college for B.C.A</mark> for students in VNSGU.
        </p>
</body></html>
```

Output:

<sub>

- The <sub> tag defines subscript text.
- Subscript text appears half a character below the normal line, and is sometimes rendered in a smaller font.
- Subscript text can be used for chemical formulas, like H_2O.

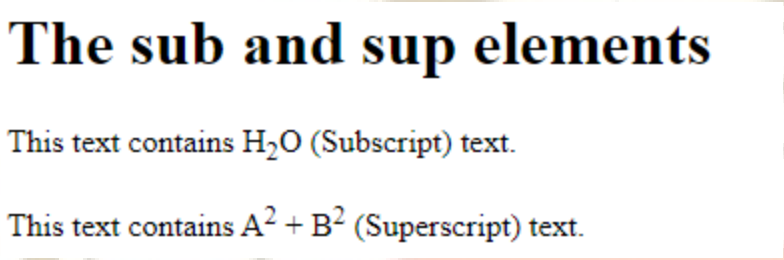
<sup> tag

- The <sup> tag defines superscript text.
- Superscript text appears half a character above the normal line, and is sometimes rendered in a smaller font.
- Superscript text can be used for footnotes, like WWW [1].

```
<!DOCTYPE html>
<html>
<body>
```

```
<h1>The sub and sup elements</h1>
<p>This text contains H<sub>2</sub>O (Subscript) text.</p>
<p>This text contains A<sup>2</sup> + B<sup>2</sup> (Superscript) text.</p>
</body>
</html>
```

Output:



<big> tag

- The <big> tag defines bigger text
- The HTML <big> element is found within the <body> tag.
- The <big> tag is used to make the text one size bigger (i.e.: from small to medium, medium to large, large to x-large).
- The <big> tag cannot make the text larger than the browser's maximum font size.
- The HTML <big> tag increases the font size.

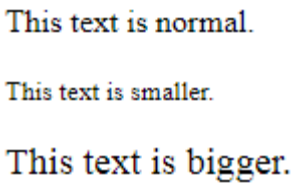
<small> tag

- The HTML <small> tag makes text one font size smaller in the HTML document. This tag is also commonly referred to as the <small> element.
- The HTML <small> tag decreases the font size.

Example:

```
<html>
<body>
        <p>This text is normal.</p>
        <p><small>This text is smaller.</small></p>
        <p><big>This text is bigger.</big></p>
</body>
</html>
```

Output:



<del> tag

- The <del> tag in HTML stands for delete and is used to mark a portion of text which has been deleted from the document.
- The deleted text is rendered as strike-through text by the web browsers.
- The <del> tag requires a starting and ending tag.

<ins> tag

- The <ins> tag in HTML is used to specify a block of inserted text.
- The <ins> tag is typically used to mark a range of text that has been added to the document.
- The inserted text is rendered as underlined text by the web browsers.
- The <ins> tag requires a starting and ending tag.

```
<!DOCTYPE html>
<html>
<body>
        <h2>HTML ins Tag</h2>
        <p>
                C.B. Patel Computer College is a <del>B.C.A college</del>
                <ins>for Computers</ins>
        </p>
</body>
</html>
```

Output: